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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/670,230	09/28/2000	Andrew R. Barron	1789-02202	7227

23505                      7590                      03/12/2004

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EXAMINER
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FIORILLA, CHRISTOPHER A

ART UNIT	PAPER NUMBER
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1731

DATE MAILED: 03/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

### Application No.

09/670,230

### Applicant(s)

BARRON ET AL.

### Examiner

Christopher A. Fiorilla

### Art Unit

1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 39-59 and 61-82 is/are pending in the application.
- 4a) Of the above claim(s) 64-72 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 39-59 61-63 73-82 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |                                                                                         |                                                                             |
|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                                |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____                                                             | 6) <input type="checkbox"/> Other: _____                                    |

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1. Claims 64-72 remain withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim.

Applicant timely traversed the restriction (election) requirement in Paper No. 9.

2. Claims 39-59, 61-63 and 73-82 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 39 is indefinite in that the preamble recites controlling the porosity and pore size distribution of ceramic “bodies”, but the body of the claim makes no reference to the formation of “bodies”.

Claim 46 is indefinite in that the preamble refers to ceramic bodies (plural) while the body of the claim refers only to a ceramic body (singular).

Claims 62,63,74 and 82 are indefinite in that the preamble recites controlling the porosity and pore size distribution of ceramic “bodies”, but the body of the claim makes no reference to the formation of “bodies”.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

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4. Claims 39-45,53-59,61,73 and 74 are rejected under 35 U.S.C. 102(a) as being clearly anticipated by Callender et al. *Aqueous Synthesis of Water-Soluble Alumoxanes:*

*Environmentally Benign Precursors to Alumina and Aluminum-Based Ceramics.*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 39-45,52-59,61,73 and 79-81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Callender et al. *Aqueous Synthesis of Water-Soluble Alumoxanes:* *Environmentally Benign Precursors to Alumina and Aluminum-Based Ceramics* for the reasons as set forth in the previous office action.

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8. Applicant's arguments filed 12/8/03 have been fully considered but they are not persuasive.

First it should be noted that page 9 of applicants arguments filed 12/8/03 question the examiner's reference to the Callender et al. reference as the "AE" reference. Applicants contend that the reference should be referred to as the "BF" reference. This issue was addressed by the examiner with a notation on the bottom of the initialed 1449 stamped 3/7/03 (copy attached).

**With respect to the rejection of claims 39-45,53-59,61,73 and 74 as rejected under 35 U.S.C. 102(a) as being clearly anticipated by Callender et al. *Aqueous Synthesis of Water-Soluble Alumoxanes: Environmentally Benign Precursors to Alumina and Aluminum-Based Ceramics* applicants argued a previous improper rejection made under 102(b). The same rationale applies. Applicants argued that Callender et al. do not mention porosity or pore size distribution. Likewise, Callender et al. neither teaches nor suggest that porosity and pore size distribution of ceramic bodies can be controlled as recited in the preamble of claim 39 and now in the first claimed element of amended claim 39. Therefore, Callender et al. cannot be used as the basis for a rejection of the claims under 102.**

This argument is not persuasive. Callender et al. does indeed mention porosity and pore size distribution (see e.g. the first column of page 2429). Specifically Callender et al. recites:

Both MEEA- and MEA-alumoxane produce either high **porosity** translucent solid "**foam**" or slightly translucent bodies consistent with a smaller **porosity**/higher microscopic density."

and further recites:

"The  $\alpha$ -Al<sub>2</sub>O<sub>3</sub> formed from MEEA-alumoxane exists as a nanocrystalline matrix with a **very high volume of large interconnecting pores** as determined by TEM studies. In contrast, analysis of the  $\alpha$ -Al<sub>2</sub>O<sub>3</sub> formed from A-alumoxane revealed **very fine uniform intragranular porosity**."

Further, as described in the above passages, Callender et al. clearly teaches that porosity and pore size distribution of ceramic bodies can be controlled by selecting the carboxylic acid composition. The passage describes the porosity that results from use of different types of carboxylic acids.

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**With respect to the rejection of the claims under 103 applicants argue:**

**Callender et al. is not available as prior art.**

This argument is not persuasive. Applicants give no explanation for the above statement, however it should be noted that the reference is dated in 1997 and the earliest priority date of the present application is in 1998.

**Applicants requested more specific passage identification with respect to the limitations of (A) the dependency of firing temperature on the type of carboxylic acid, asserted to be on page 2428, and (B) the selection of firing temperature on the basis of desired density, asserted to be on page 2431.**

With respect to (A) above, it is submitted that p.2428 recites:

*“All of the carboxylate alumoxanes are converted to  $\alpha$ -alumina above 1200°C with firing times  $\geq 4h$ . It is interesting to note that the A-alumoxane is highly reactive and forms crystalline  $\alpha$ -Al<sub>2</sub>O<sub>3</sub> at temperatures below 1200°C (1170°C)”.*

Since “A-alumoxane” refers to a material made from a specific carboxylic acid it is clear firing temperature is dependent on the specific carboxylic acid used. Further, note that Table 3, refers to different decomposition temperatures for each of four different carboxylic acids.

With respect to (B) above, it is submitted that p. 2431 recites:

*“The choice of alumoxane and firing conditions will be chosen to produce membranes with low density/high porosity.”*

9. Claim 46,62,63 and 82 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

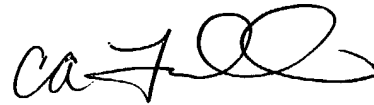
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10. Claims 47-51 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher A. Fiorilla whose telephone number is (571) 272-1187. The examiner can normally be reached on M-F, 6:30am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven P. Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**Christopher A. Fiorilla**  
**Primary Examiner**  
**Art Unit 1731**

caf